



United States  
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Agriculture



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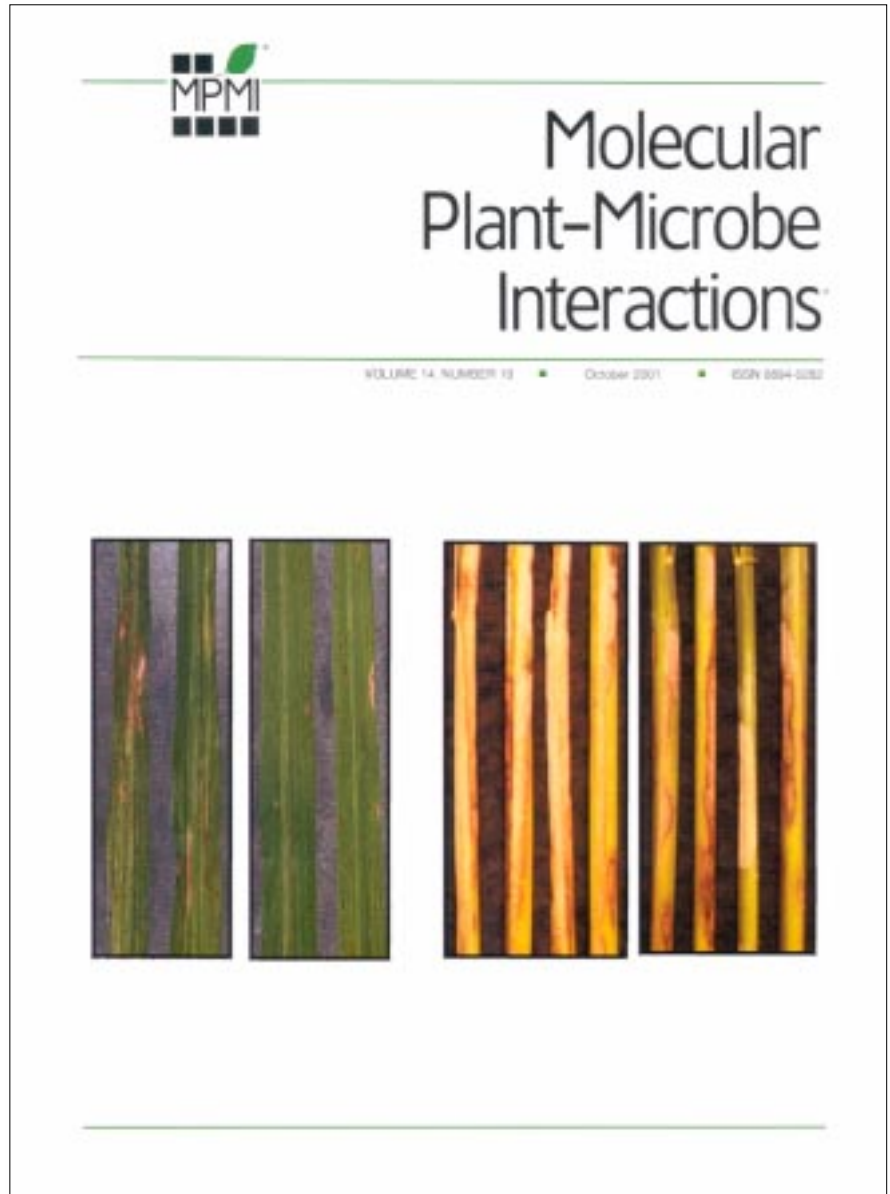
National Research  
Initiative Competitive  
Grants Program

2002 No. 2

*Krishnamurthy, K., C. Balconi,  
J.E. Sherwood and M. Giroux.  
2001. Wheat Puroindolines  
Enhance Fungal Disease  
Resistance in Transgenic Rice.  
**Molecular Plant-Microbe  
Interactions.** 14(10):1255-  
1260*

# Cover Stories:

## Major Scientific Publications Featuring NRI-funded Research



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**S**ince crop production is often limited by microbial pathogens, improving a crop's defense against pathogens could help maintain and increase yields. Plants defend themselves against pathogens in various ways. One defense involves the production of antimicrobial proteins called puroindolines that limit pathogen infection and growth. This class of proteins consists of two closely related proteins called pinA and pinB. With NRI funding, Krishnamurthy, Balconi, Sherwood, and Giroux created transgenic rice plants that produced puroindolines. (The transgenic genes were taken from wheat which is the only crop that naturally contains these proteins.) The transgenic plants showed a significant increase in tolerance to two major fungal diseases, rice blast and sheath blight. The research indicates that pinA and pinB are effective anti-fungal proteins that could be valuable tools in controlling a wide range of fungal pathogens.

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